DEVICE AND METHOD OF COMMUNICATION BY INFRARED BETWEEN A USER AND A REMOTELY CONTROLLABLE APPARATUS

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FIELD OF THE INVENTION

The present invention relates to a device for interfacing between a user and an apparatus which can be remotely controlled by infrared radiation, furnished with a box comprising data storage means, means for remote control of the apparatus which are configured to transmit infrared signals on the basis of the stored data, and means of communicating with a unit for programming said means of remote control.

It also relates to a method of communication between a user and an apparatus which can be remotely controlled by infrared radiation via a programmable interfacing device.

The invention finds a particularly important although not exclusive application in the field of interactive outlets communicating by infrared radiation, or in the field of home automation, that is to say the field of the use of computerization applied to office or private accommodation.

It also relates to the field of games and interactive toys.

BACKGROUND OF THE INVENTION

Devices or methods making it possible to render apparatuses or systems interactive by infrared radiation are already known.

The latter have drawbacks. In fact, when such devices drive self-contained interactive apparatuses such as videodisc or CD-I players, CD-photos, CD-video, etc. they generally employ expensive and complex means such as for example a microcomputer whose function consists in gathering the signals, processing them via a computer program and then driving the apparatuses. This results, in particular, in great rigidity of utilization.

BRIEF SUMMARY OF THE INVENTION

The present invention aims to provide a device and a method of communication which improve upon those previously known in meeting the requirements of practice, especially in that it offers greater flexibility of utilization and in that it employs inexpensive means which are easy to use for a non-specialist operator.

For this purpose, the invention proposes particularly a device for interfacing between a user and an apparatus which can be remotely controlled by infrared radiation, including a box of small size comprising:

data storage means,

means for remote control of the apparatus including means for transmitting infrared signals arranged to control the apparatus on the basis of the stored data, and

means of communicating with an external unit for programming said means of remote control, characterized

in that said means of communicating comprise infrared signal reception means and at least one serial link,

in that said means of remote control comprise processing means for the infrared signals corresponding to the programmable apparatus which are capable of coding into ASCII and then of storing said infrared signals in a read/write memory and of processing said signals thus coded and/or the stored data in order to carry out a specified application with said apparatus,

and in that the device comprises at least one individual sensor actuatable by the user and capable of triggering the transmission of the infrared signals for remote control of the apparatus from said processing means, so that said specified application is at least partly carried out.

Advantageously, the device comprises means of visual and/or sound interfacing with the user and means of controlling said interfacing means on the basis of external signals.

In an advantageous embodiment, the external signals are infrared signals transmitted by a second device according to the invention configured so as to send to the first device furnished with the means of visual and/or sound interfacing at least part of the specified application stored in said remotely controllable apparatus.

Advantageously, the invention also proposes a device which includes several connection inputs and several individual sensors located some distance from the box, respectively connected in a removable manner by cabled link to said connection inputs, said sensors being actuatable by the user and capable of triggering the transmission of the infrared signals for remote control of the apparatus from said processing means, so that said specified application is carried out.

Advantageous embodiments moreover resort to one and/or the other of the following provisions:

the sensors are capacitive elements, for example capacitive keys;

at least two sensors are connected in parallel to the same connection input;

the sensors and the processing means are moreover configured to control the transmission of ASCII signals via the serial link;

the means for storing data corresponding to the infrared signals to be transmitted and the sensors are configured so as to be programmed in the form of character strings, so that the totality of instructions for remote control of the apparatus by the device is stored in a single read/write memory;

at least one sensor is configured so as to trigger different transmissions of infrared signals depending on the previous action of the user on said sensor, and/or on one or more other sensors.

This amounts to bestowing several functions upon one and the same sensor.

For example, if six different sensors relate respectively to a video recorder, a videodisc player and a CD player, as well as to the play, rewind and forward functions, previous pressing of the sensor of the apparatus which it is wished to control makes it possible, on contacting the function sensors, to dispatch the infrared signal for controlling the specific apparatus thus previously selected.

at least one infrared signal can be triggered automatically, without any action being exerted on the sensors, in repetitive fashion in accordance with a specified interval.

The invention also proposes an interactive system of communication comprising at least two devices of the type described above which are configured to interact with one another.

The invention further proposes an interactive system for communication by infrared radiation between a user and a remotely controllable apparatus so as to carry out a specified application, comprising a first device furnished with means of visual and/or sound interfacing with the user and with at